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Organizing for the Future:
Aligning U.S. Air Force Cyber Support with Mission Assurance

by

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Disclaimer

Abstract

While the U.S. Air Force focuses its attention on operationalizing cyberspace, it must not overlook the role of traditional communications support of air and space operations. Today, air and space wings also require cyberspace mission assurance: identifying mission essential functions, mapping cyberspace dependence, and mitigating risk in a connected environment. However, significant budgetary forces have shaped the base communications squadron in recent years, and the resulting unit, encumbered with a range of force support activities and possessing limited network oversight, is poorly postured to provide appropriate support for the operational community. In the coming years, demand for greater efficiency will inevitably lead to fewer personnel at the base level, despite a tremendous increase in network use. Meanwhile, the base communications mission remains largely unchanged, excepting internal structure shifts in the face of personnel reductions. From a personnel perspective, recent efforts to consolidate communications specialties under "cyber operations" and "cyber maintenance," prove problematic: an analysis of these duties reveals close ties to other wing missions, indicating potential benefit from functional realignment. These budgetary pressures, scope of mission requirements, and recent career field changes converge to demand a review of the base communications squadron's organization. The enabling concept recently proposed by Air Force Space Command provides an ideal opportunity to do so, and complete the realignment of cyberspace command and control down to the base level. The resulting unit will be better postured to support traditional air and space operations, while providing the wing commander an organic cyberspace support detachment, connected to the 624th Operations Center for their network defense capabilities and focused on local cyberspace mission assurance.

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Introduction

> "Just as airpower grew from its initial use as an adjunct to surface operations, space and cyberspace have likewise grown from their original manifestations as supporting capabilities into warfighting arenas in their own right."[1]
>
> *– Air Force Basic Doctrine, Organization, and Command*

We live in an exciting time. We are witnessing the historical integration of cyberspace into U.S. warfighting capability, an event reminiscent of airpower's early days when it crosscut the traditional battle spaces and began generating effects across the land, sea, and air domains. Ultimately, the "rise of airpower" would drive slow organizational changes for the War Department and it would take another 40 years before the U.S. recognized the Army Air Forces as an equal command to the Army's ground and supply forces.[2]

Today, the wide acknowledgement of cyberspace as an operational environment, from Gibson's 1994 fictional definition to Waltz's 1998 doctrinal reference, is driving a much faster rate of organizational change within the Department of Defense.[3] Much as it did after the initial use of the air domain as a battle space, the Air Force has fielded cyberspace units to leverage cross-domain capabilities and keep up with the pace of change in operational art. In fact, today's cyberspace units are very much the equivalent of those early flying squadrons, rapidly developing their tactics and honing their craft in a rapidly changing environment. However, while the Air Force has necessarily focused its efforts on the establishment of cyberspace capabilities, it has neglected to address a critical, lingering mission area: the basic communications squadron (CS) that is still supporting traditional air and space missions. Despite the predominant cyber focus of today, these basic responsibilities remain as vital warfighting functions and deserve renewed attention.

This is familiar terrain for the Air Force, and the emergence of a new, game-changing medium is once again driving plans to modernize command and control mechanisms and cement

cross-domain dominance, this time in the realm of cyberspace. It is important to consider a recurring theme that exists when considering the Airman's view of this domain, highlighted in recently approved Air Force cyberspace operations doctrine: "Airmen normally think of the application of force from a functional rather than geographical perspective. Airmen do not divide up the battlefield into operating areas as do surface forces; air mindedness entails thinking beyond two dimensions, into the dimensions of the vertical and the dimension of time. Airmen leverage speed, range, flexibility, precision, time, and lethality to create effects from and within the air, space, and cyberspace domains."[4] This perspective deserves attention when organizing for cyberspace operations, as the emphasis must be on functional activity, versus physical location, and aligned to take advantage of the very attributes cyberspace offers, the collapse of distance and the removal of related time constraints characteristic of traditional command and control structures.

Through Air Force Space Command (AFSPC), operational planners have built an enabling concept for the command and control of cyberspace forces,[5] which sets out an aggressive reorganization effort to accomplish this goal. Between now and the year 2017, the enabling concept charts a path for updating outdated network control mechanisms to one in which cyber operations are integrated with the Geographic Combatant Commanders' plans and executed through Air Operation Centers worldwide. In the traditional communications support role, the enabling concept seeks mission assurance by providing effective command and control from the 24th Air Force (24 AF) headquarters function, down to the in-garrison base Network Control Center in direct support of air and space wings. These two paths diverge deliberately, with the first focused on integrating the effects of cyberspace operations and the second on the cyberspace support role of mission assurance.

To define cyberspace mission assurance, we must again look to Air Force cyberspace operations doctrine; AFDD 3-12 provides an illustrative definition of mission assurance as, "Measures required to accomplish essential objectives of missions in a contested environment."[6] It continues by highlighting the need for prioritized mission essential functions, mapping cyberspace dependence and risk mitigation. At first glance, these appear to be the same type of core operational risk management measures normally found in traditional mission planning, but now applied to the cyberspace realm. However, while the concept of operational risk management in planning is not new, the approach to have cyberspace mission dependence managed by the base communications unit certainly is a novel proposal. Unfortunately, this new mission will not take care of itself. The base level communications squadron must evolve from communications network maintenance and related support activities to cyberspace mission assurance.

To accomplish this transition, a comprehensive review of the existing communications squadron's duties is required, with a clean delineation of traditional communications and information responsibilities from those of mission assurance. The findings of such a review will require changes to the communication unit's placement within the objective wing, as well as spurring internal organization adjustments. The desired outcome is a functional alignment for the base communications unit that places emphasis on maintaining support for the traditional missions in air and space while integrating a "cyberspace mission assurance" focus into the wing.

Paying the Bill: Evolution of the Communications Squadron

> "Balancing these portfolios with the required personnel cuts in PBD 720 is vital to keeping our Air Force strong and ready. We are beyond refusal speed for implementing the significant changes our Air Force needs. The Air Staff is aware of how difficult these cuts are and of the tremendous human impact they have. I want to reemphasize that we will not, under any circumstances do anything to diminish the command authority we need to fly and fight and win in air, space, and cyberspace domains. I need your mutual support to ensure each and every one of our disciplined Airmen understands this."[7]
>
> *- Air Force Chief of Staff, General T. Michael Moseley*

Before assessing the components of the communications squadron mission, it is important to understand the difficult circumstances that shaped their current organization. In December 2005, Congress provided the Air Force the opportunity to achieve significant budgetary savings with the release of Program Budget Decision (PBD) 720.[8] Driven by fiscal constraints, PBD 720 enabled the Air Force to make a number of adjustments and free up nearly $21 billion between 2006 and 2011.[9] A significant portion of this savings, approximately $6 billion, would result from personnel cuts, with the Air Force recognizing that $1.5 billion could be saved for every 10,000 airmen reduced.[10] Thus, despite initial estimates in mid-2005 of a modest 10,000 personnel reduction to the then active-duty Air Force end strength of 357,400, personnel reductions quickly grew to 42,000 by December 2005 and ultimately to 57,000 by June 2006.[11] Personnel from communications and information Air Force Specialty Codes (AFSC) were among several significantly affected career fields, with 8,179 positions identified for elimination, some 22 percent of the workforce in these specialties.[12] In order to complete the cuts by 2009 instead of 2011, the Air Force accelerated the personnel reductions, exacerbating issues for communications squadron manning.[13]

These personnel reductions came at a time when operational advantages offered by networked data communications were in rapid development, particularly by the advocates of

"transformative" military affairs. In 2004, the Air Force produced the "Air Force Transformation Flight Plan," which referenced communications capabilities on almost every page, and expressed near-universal desire for "robust communications networks that will facilitate collaborative planning."[14] This emphasis on increased operational support in an environment of reduced personnel, coupled with regionalized network control and maintenance initiatives, drove a significant reorganization of the base communications squadron. In August 2007, the Air Force reduced the base communications squadron from four flights to two flights, which were the Operations Flight and Plans Flight, with provisions for a Special Missions Flight, on a case-by-case basis and if approved by the Air Staff.[15] The two-flight communications squadron remains in effect today.

Another significant change to the communications and information community came with the implementation of Program Action Directive (PAD) 07-08, *The Secretary of the Air Force's Direction to Organize Air Force Cyberspace Forces*. This document drastically changed the Air Force's command and control structure for communications units, while never mentioning the base communications squadron. As illustrated in the next section, this is a critical point when assessing the scope of the communications squadron mission and its associated command relationships.

Defining the "Traditional" Communications Squadron

> "Finally, cyberspace, qua network infrastructure, is the substrate for all Air Force operations, but the work of establishing Air Force networks has long ago been assigned to its communications and computer communities. Could the work of these diverse communities profit from being folded into a single AFCYBER MAJCOM or a cyber NAF?"[16]
>
> *- 2010 RAND Corporation Study of Provisional Air Force Cyber Command*

PAD 07-08 designated AFSPC as the lead for organizing, training, and equipping cyberspace forces, which were in the process of realigning under new cyber-centric AFSCs. More importantly, the directive established new command and control mechanisms, with the stand-up of 24 AF as the Component Numbered Air Force (CNAF) to AFSPC with three wings supporting Information Operations, Combat Communications, and Network Warfare.[17] Additionally, the 624th Operations Center was chartered to "plan, direct, coordinate, assess, command and control Air Force full spectrum cyberspace operations in support of Air Force and Joint warfighters,"[18] a role which requires significant interaction with the base communications squadron. While PAD 07-08 did not address the role of the base communications squadron, the 624th Operations Center operating concept explains the relationship in the context of a network attack:

> When it is determined part of the AFIN [Air Force Information Network] is under attack, the 624 OC/COD will immediately consult with 24 AF Net-D units and USSTRATCOM/ USCYBERCOM to determine the severity of the event. If necessary to take an action at a specific Air Force installation, the 624 OC (via the 24 AF/CC) will notify the affected MAJCOM and installation commanders via immediate message traffic (AMHS with the appropriate classification level (SIPRnet, JWICs) e-mail and/or by voice as backup). If the threat poses immediate risk to on-going operations or a critical friendly force node, the 24 AF/CC will utilize his instantaneous TACON authorities to direct actions of individual installation Communications Focal Point (CFP)/Network Control Center (NCC) Airmen.[19]

This tactical control (TACON) is exerted over the base communications squadron (see Figure 1), a support group unit with varied responsibilities, from postal operations to airfield systems maintenance and with little actual control over the base network. It places these Airmen in a dilemma that demands reporting and accountability with none of the requisite tools to manage local cyberspace dependency. As will be discussed later in the proposed organization alignment, an empowered operational detachment of the 24th Air Force would be better postured to support this type of command and control structure.

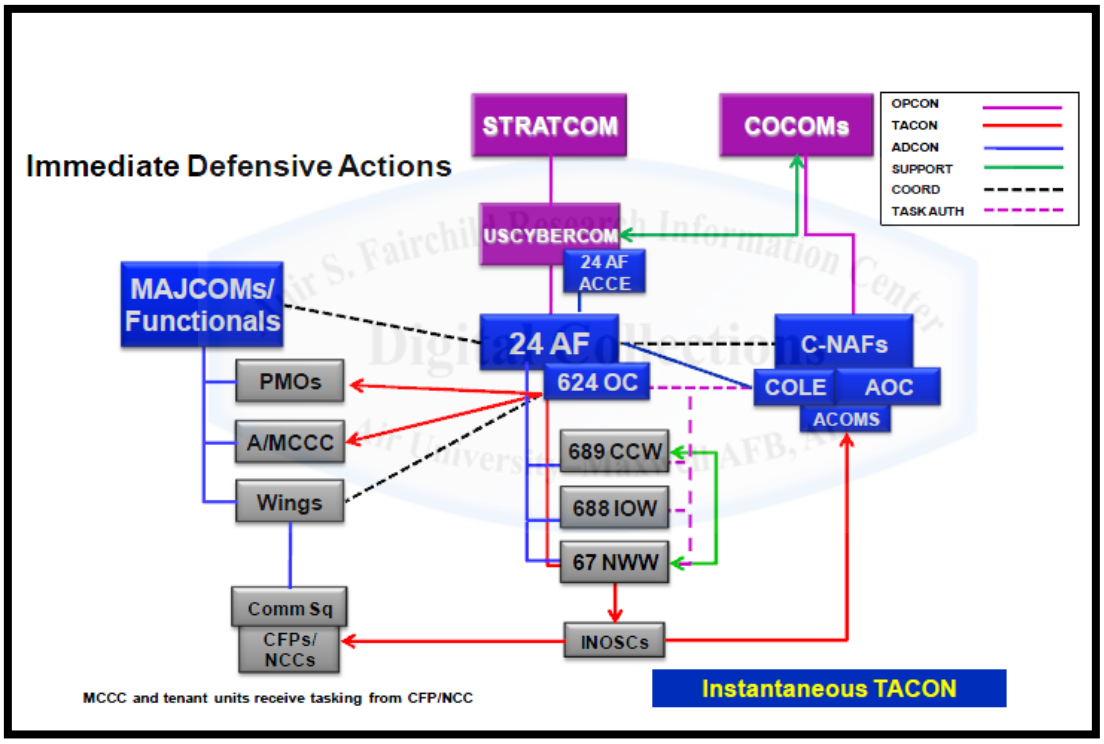

Figure 1: 24th AF Executed TACON over Base NCC
(Reprinted from Concept for 624th Ops Center, 4 Oct 2010: 34).

To assess the scope of the problem, we must first determine the type of work the Air Force's communications squadrons are performing. As of March 2011, 269 active duty, guard, and reserve units are performing some type of communications support work (see Figure 2). This total excludes the cyberspace operations units (e.g., Network Warfare Squadrons,

Information Operations Squadrons, et al) working under the 24th Air Force. The communications support units include 100 flights, 151 squadrons, 17 groups, and one combat communications wing, performing a variety of broad mission functions, as outlined in Figure 2. Despite a trend toward more "specialized" communications units, the table above reveals that the majority are still performing general or traditional communications support.

	Traditional	Space	Combat Comm	Special Ops	ACOMS	TOTAL
Flight	100	0	0	0	0	100
Squadron	99	5	40	2	5	151
Group	7	0	10	0	0	17
Wing	0	0	1	0	0	1
TOTAL	**206**	**5**	**51**	**2**	**5**	**269**

Figure 2: Broad Distribution of Communications Support Units
(Extracted from Air Force Total Human Resource Managers Information System (THRMIS), March 2011.)

For the purpose of this paper, the focus is on optimizing the "traditional communications" unit for a mission assurance role in support of base operations. These units range dramatically in size, from more than 500 personnel in the 86th CS, to reserve communications squadrons comprising less than 30 personnel. Although many of these squadrons have undergone significant personnel reductions in the previously described budgetary cuts, most have retained the two-flight organization established in 2007. A common refrain from the leadership of these squadrons is that the two-flight structure is imbalanced and places far too many resources and personnel in the Operations Flight at the expense of the Plans Flight. A small, but representative sample of communication squadrons reveals some interesting trends (see Figure 3). As the mission set under the operations header is so diverse, it is understandable why some units have more than 85 percent of their squadron's personnel assigned to the Operations Flight. Some cases, such as Peterson's 21st CS, are even more severe. With 188 personnel in the Operations

Flight and only 20 personnel in Plans, significant challenges existed for squadron leadership to ensure that mid-level leaders were able to tend to the needs of such a large flight. Other communications squadrons have noted the incredible span of control required, with the flight often led by a junior officer who is unprepared to handle such a large number of personnel issues. Alternatively, appropriate leadership development opportunities are rare in the Plans Flight; these leaders must often wait for an Operations position to become available. Such disparity has led many communications squadron commanders to ask the Air Staff for relief from the two-flight structure, in favor of a more balanced internal organization.

BASE	UNIT	SIZE	SCO	SCX	ORGANIZATION NOTES
Dyess	7th CS	99	85	14	
Offutt	55th CS	233	197	36	
Peterson	21st CS	212	188	20	Approved 3rd Flight, SCY: 4
Ramstein	86th CS	552	260	152	Approved 3rd Flight, SCP: 140
Seymour Johnson	4th CS	117	75	25	
Travis	60th CS	198	140	58	

Figure 3: Representative Sample of "Traditional" Base Communications Squadrons
(Extracted from THRMIS and validated with affected units, November 2011)
17 units contacted to confirm their organization, the five above responded.

Rather than simply rebalancing the communications squadron, it may prove more prudent to analyze the duties of each section and determine if other units within the wing could perform some of these activities. An analysis of these duties follows in the next section.

Communications Squadron Mission Analysis

> "Cyberspace is a contested domain, and the fight is on--today. Every Airman holds the key to success, and every Airman must become a cyber defender, whether acting as part of a team or individually on Air Force networks. We must all conduct ourselves as 'Cyber Wingmen,' recognizing that our actions and activities on the network affect every other Airman and impact our ability to execute the broader Air Force mission. We will, in short, deliver on our promise to *fly*, *fight* and *win* … in air, space and cyberspace."[20]
>
> - *Air Force Secretary Donley and Chief of Staff General Schwartz*

Air Force leaders recognize that the connectivity provided by cyberspace is integral to mission performance, and not just for the operations or intelligence communities. Indeed, every Airman that has access to the Air Force network is now a component of the network's overall security. As data connectivity becomes ubiquitous, the challenge lies not in the ability to provide service, but in securing it. The emphasis of the traditional communications squadron was originally on connectivity and only in recent years has security begun to overtake connectivity as a primary objective. It is arguable that some still have a connectivity-at-all-costs attitude, even to the point of jeopardizing the mission. However, with data connectivity now sharing more in common with a utility like power and water, the emphasis must transition to mission assurance: mapping cyberspace dependency and mitigating the risk of operational dependence on this connectedness. The focus of the communications mission must move from provisioning service to guaranteeing secure access for mission accomplishment. It is time to review the work of the communications squadron and highlight areas for regionalization or divestiture, with the intent of refining a mission assurance focus for the operational wing. This will likely mean the end of the traditional communications squadron with the advent of a local cyberspace mission assurance detachment.

The traditional base communications squadron's duties can be broken into five broad areas: network management and governance, base infrastructure, airfield systems, force support activities, and expeditionary communications. A discussion of each mission area follows, with particular emphasis on those activities considered for performance elsewhere, whether through regionalization, centralization, or divestiture to other wing units.

The first area, the network management and governance function, is nominally comprised of hands-on systems maintenance performed by the network control center, enforcement of network standards and user compliance, and, at least historically, trouble ticketing. However, the consolidation of the Air Force network under the Operating Concept for Air Force Network (AFNET), Increment 1, will centralize network management under the 26th Network Operations Squadron and 33rd Network Warfare Squadron.[21] Ultimately, this effort will segregate the Air Force unclassified network from external connections, in an effort to improve operational control under the 24th Air Force, as well as providing each base with redundant external connectivity via secondary service distribution points, through the previously mentioned network management units (depicted in Figure 4).[22] With network management centralized, the corresponding network governance functions, also known as Chief Information Officer (CIO) Responsibilities, would also migrate under their parent network management unit. The local cyberspace mission assurance detachment would enforce governance functions requiring direct, hands-on intervention. The infrastructure management mission, discussed below, should perform any remaining touch maintenance services that require physical, hands-on work, previously performed by the base network control center.

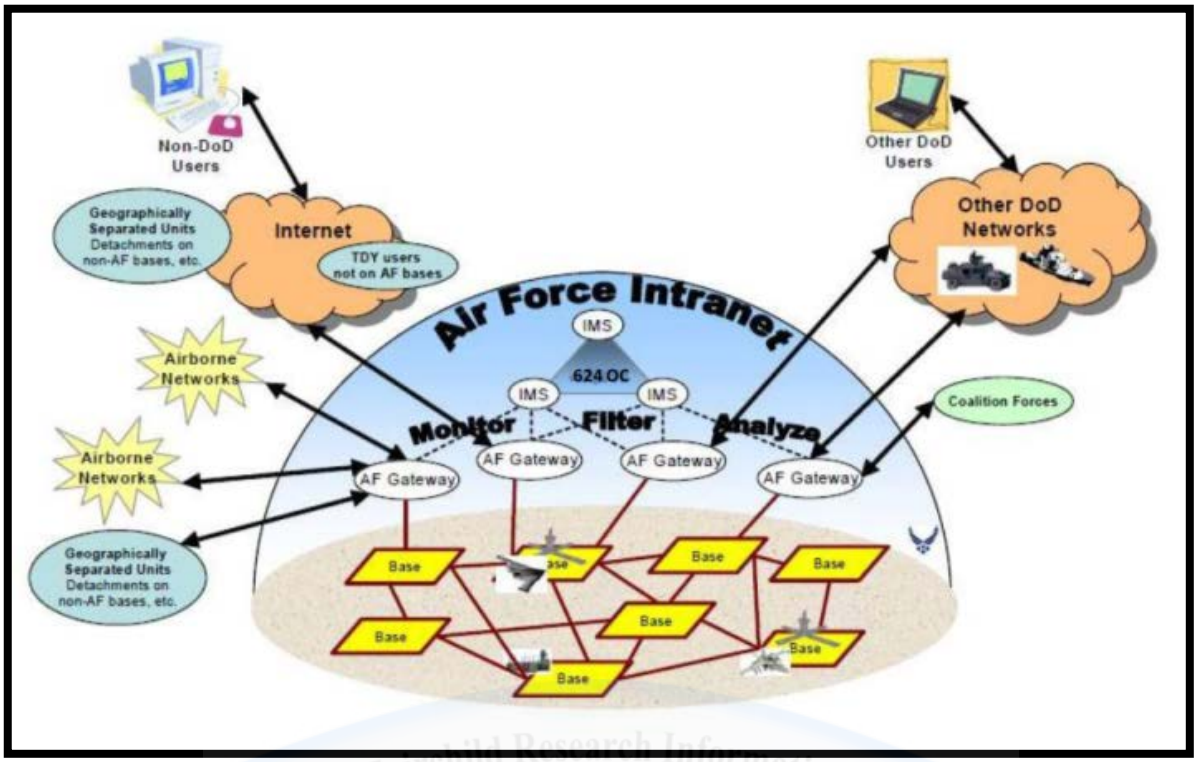

Figure 4. Air Force Intranet Operational Concept Diagram
(Reprinted from the AFSPC Operating Concept for the Air Force Network, Increment 1, 29 Jun 2010, 6.)

The next area for consideration is the base infrastructure mission. For some time, personnel performing cable maintenance and upkeep of associated infrastructure have maintained a relationship with civil engineering. The same conduit providing power often provisions voice and data services throughout a base – but how often have well-meaning personnel inadvertently dug up data cables because of poor communication between peer organizations? The Plans Flight, as well as cable maintenance and routing equipment, belongs in the Civil Engineering Squadron (CES). This well-established infrastructure organization would coordinate dig permits, ensure cable maintenance considerations when planning road or other improvements, and even provide better service during the design and validation of military construction projects. Once the Air Force acknowledges network service as a ubiquitous utility, the personnel that are so apt at providing power and water to base customers around-the-clock will be able to deliver the same type of service for data connectivity. Significantly, this is focused only on data provisioning; the network management function remains with the parent

Integrated Management Site (IMS), while the local cyberspace mission assurance detachment has oversight of the local network security suite. This is consistent with the AFNET Increment 1 operating concept to "provide the AF intranet with 16 gateways and IMS suites which will be operated, defended, and managed by the 624 OC, 26 NOS, and 33 NWS."[23] This local boundary protection access would be limited on a routine basis, with the acknowledgement that local personnel can more readily identify threats to their mission, a concept expounded upon in the proposed organization section.

The third mission for discussion is the range of force support functions performed by the communications squadron. These services include postal operations, base records and publications (including Freedom of Information Act, or FOIA, requests) and telephone switchboard operations. Today, postal operations are essentially a function of logistics. While this mission may have historical ties to communications as a means of passing information, it has evolved into a function which shares more in common with the United Parcel Service (UPS) than with Yahoo or Google; after all, it is more about moving physical items from place to place than zeros and ones on the network. As the well-known UPS advertisement purports, "It's Logistics." The Logistics Readiness Squadron (LRS) should assume these operations, as this unit has existing relationships with the commercial carriers and can handle the requisite movement of letters and parcels to base customers. Base Records and Publications are an area requiring direct wing oversight, especially when considering the public profile of FOIA requests. Placing this operation under wing administration is a logical choice. Finally, the Air Force should follow the example of industry and regionalize telephone switchboard operations for greater efficiency. There is little need for operators to sit at each base to direct phone calls; this is a holdover from when analog phone lines were high technology.

The fourth area for analysis is operational airfield systems support, equipment such as meteorological and navigational aids (also known as Air Traffic Control and Landing Systems, or ATCALS), base radios, and other mission sets tied immediately to the base flying mission. The operations group must reclaim these missions as part of the operations support squadron, and integrate these functions with the direct operators of the equipment. The air traffic controllers, base operations personnel, command post – essentially all the users of these systems – would benefit from the raised profile of the maintenance function existing within the operations group. Close collaboration between those using the systems and those maintaining them is vital. Alternatively, the maintenance group could service this mission area, as part of the existing equipment maintenance squadron. This solution offers the benefit of bringing like-minded maintenance personnel into the oversight and certification process, while reducing the possibility of the operations group repurposing personnel and funds to other missions.

An additional argument for placing this function in the maintenance group is the ATCALS modernization effort, which outsources and regionalizes much of the systems maintenance functions. All permanent Air Force bases with ATCALS and weather systems maintenance responsibilities will transition to regionalized maintenance centers by FY 2012.[24] An important aspect of this mission is the Quality Assurance (QA) program mandated by 90-series Air Force Instructions; this oversight would also benefit greatly by integrating with the maintenance group's self-inspection program, bringing a wealth of experience together in standardized maintenance and evaluation programs.

Finally, in today's deployed environment, combat communications teams perform initial expeditionary communications responsibilities. While theater deployed communications is an important legacy feature of the in-garrison communications squadron, it has evolved into a

highly specialized service. Under this model, combat communications units comprised of a complete range of expeditionary skill sets, including portable airfield systems, cable and antenna maintenance, and even localized network management functions will integrate with civil engineering activities like power production and initial airfield support. The deployment cycle and augmentation of these units will continue under the Air Expeditionary Force model.

The communications squadron historically handled these five mission areas under the consideration that there was a special "connectedness" component to each. Today, all operational units are highly "connected," and from wartime missions to daily administration, each day brings more functionality that seeks to leverage this networked characteristic. While the Air Force stands to achieve significant efficiency through these divestiture and regionalization efforts, it will also gain improved operational support at the local level. Before discussing the organization of this local support, it is worthwhile to assess several aspects of what is arguably the most important aspect of these changes, the Airmen performing traditional communications work.

The Legacy Communicator

> "As we seek to address the threats from cyberspace, Joint Force personnel must always understand that every networked computer is on the front line. Everyone who logs on is a cyber defender first. There are no 'protected zones' or 'rear areas' because all are equally vulnerable."[25]
>
> *- 2010 Joint Operating Environment*

The Air Force anticipates that significant cyberspace effects will characterize the future operational environment, and bring heightened awareness to the issue of cyberspace dependency. In a world of asymmetric conflict, the technology-dependent Air Force is the most vulnerable service to attacks on its networks; it must take steps to ensure the local air and space missions have visibility of threats to their operations. The future operational environment demands greater control by experienced personnel at the point of presence, not in an operations center hundreds or thousands of miles away. This does not imply a large personnel footprint, as the security-focused Airmen who are able to perform this function act as force multipliers when coupled with boundary protection suites. The connectedness of the Air Force mission and the reduced need for physical presence to "have a conversation" does not override the requirement to be able to observe and interact with operations personnel in the physical realm. In fact, these air and space wings need this type of communication now more than ever: operationally minded technical Airmen that can provide advice on cyberspace mission assurance to their executing wings.

In order to refocus Airmen on cyberspace mission assurance, some traditional communications missions must realign to other units within the wing. For example, while some will be dismayed to consider the movement of the base infrastructure mission to the Civil Engineering Squadron, inherent mission ties often run deeper than the organizational ones. In fact, some career fields are a natural match. For example, the following duty description to,

"install, operate, maintain, and repair base direct support systems and equipment" sounds very similar to "installing, maintaining, repairing, overhauling, deploying, and modifying […] systems and equipment platforms."[26] Which is from communications and which is from the civil engineering specialty summary? While the first is civil engineering and the second is communications, they are nearly indistinguishable in scope of work. Some might argue the communications work is much more technical in nature; however, the personnel in power production and environmental systems, with their own heavy reliance on internet protocol (IP) based systems, are arguably just as technical in nature. These specialties do not need to merge, but rather co-exist, and benefit from the synergy of consolidating in a single unit.

Similarly, radio frequency (RF) transmission, ground radar, and airfield systems have much more in common with aircraft maintenance personnel and, specifically, avionics and

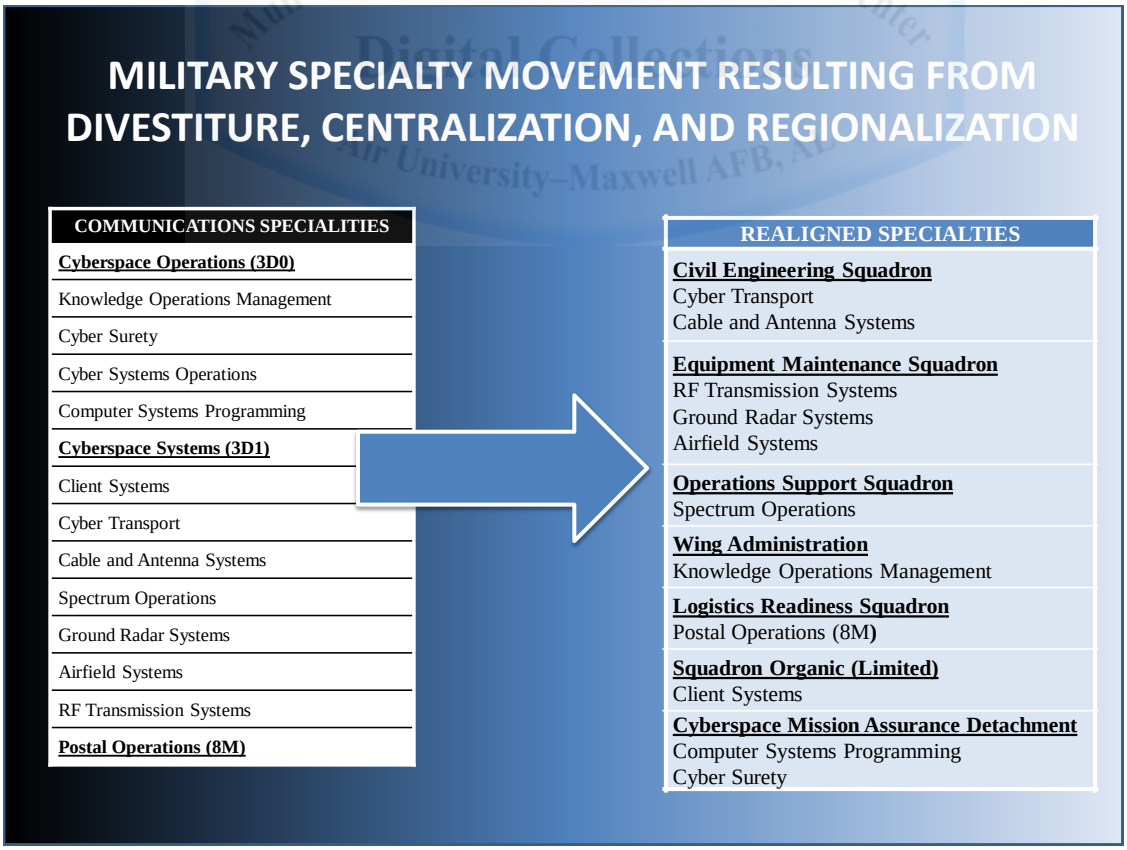

Figure 5: Proposed Military Specialty Movement

maintenance management specialties. Being inherently maintenance-oriented, these career fields are a natural match for the maintenance community.

A discussion of each specialty's technical merits and appropriate matching to related career fields is a lengthy topic worthy of its own study. However, it is evident that commonalities between these communications career fields and other missions are often more significant than labeling them collectively as "cyber" because they use communications as a common medium. Based on this, Figure 5 (above) presents a proposed alignment by squadron.

A Proposed Organization

> "Cyberspace operations are much more than the management and configuration of hardware and software which create the cyber domain. They are the employment of cyber capabilities where the primary purpose is to achieve military objectives in and through cyberspace – they are true operations that create integrated effects, much like operating airplanes and satellites."[27]
>
> *- Air Force Communications Guidance Paper, Sept 2010*

The focus of this assessment is delivering cyberspace mission assurance to the traditional air and space wing. Divesting and centralizing are critical components of this effort; savings

MISSION	CURRENT	PROPOSED	NOTES
Airfield Systems	CS/SCO	MXG/EMS	
Antenna Maintenance	CS/SCO	CES	
Base Records & Publications	CS/SCO	Wing	
Cable Maintenance	CS/SCO	CES	
Communications Plans	CS/SCX	CES	
Hardware Accountability	CS/SCO	LRS	
Network Help Desk	Centralized	Centralized	Tier 3 is local/work center
Network Management	Centralized	Centralized	
Postal Operations	CS/SCO	LRS/FSS	
Quality Assurance	CS/QA	MXG/QA	
Spectrum Management	CS/SCO	OG/OSS	
Telephone Operations	CS/SCO	Regional	
Theater Deployable Comm	CS/SCO	Combat Comm	

Figure 6: Proposed Mission Divestiture and Centralization

comes from identifying missions for performance elsewhere with less overhead. Figure 6, above, summarizes these movements.

The ideal arrangement to deliver localized cyberspace mission assurance is through the aforementioned Cyberspace Mission Assurance Detachment that works for the wing commander. This detachment will be comprised of a very small, trained cadre of network personnel with increased network access and permissions. They will leverage groundwork accomplished by AFSPC and align as the local command and control node for the 624th Operations Center in a network event.

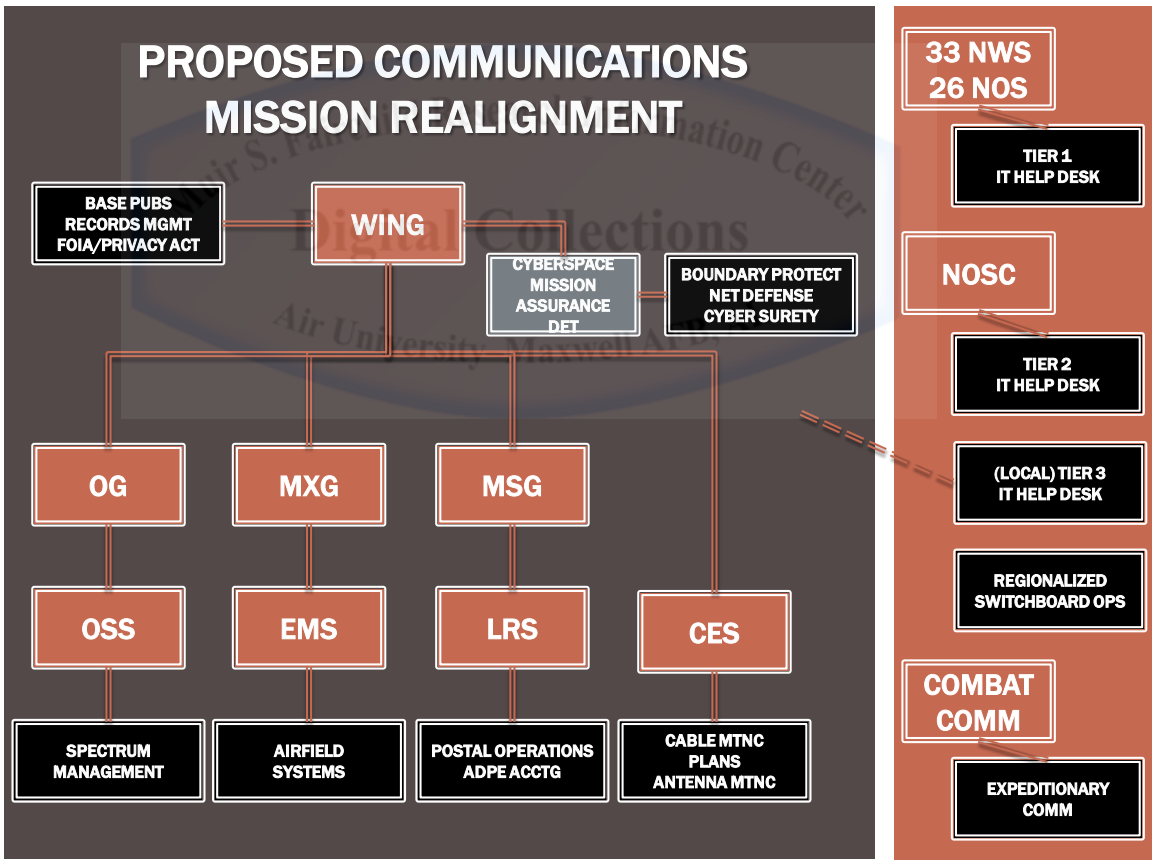

Figure 7: Proposed Communications Mission Realignment

While network management oversight is typically a positive aspect of mission assurance, some issues stem from too many administrators having access to the network, especially those that are physically removed from the local mission. The benefits of having trained "inside folks" at the wing are obvious, as it will allow the 24th Air Force to maintain greater vigilance over the network while providing the wing commander with an expert cadre on-site. These folks would have permissions that the current NCC does not and cannot. The local cyberspace mission assurance detachment, comprised of three to as many as 10 personnel, depending on mission size, will leverage a mix of military and civilian positions to enforce security policy and protect the network from unauthorized activity.

This proposed organization in Figure 7 (above) is clearly only a starting point for a continued discussion, but the divestiture, regionalization, and centralization efforts must be a part of the plan. Only after refocusing the communications personnel on the respective duties can the local mission assurance detachment become a viable option.

Recommendations

"The Air Force is required to command and control cyber forces in support of Joint and Service missions. 24th Air Force, along with the 624th Operations Center, was established to lead this capability. The Air Force is, for the first time, aligning most cyber assets under a single operational organization, providing them with comprehensive situational awareness and controlling them from a single operations center. Air and Space command and control present similar challenges, but the pervasive nature of cyberspace across all operational domains introduces a new level of complexity and interdependence unique to the cyber mission."[28]

- AFSPC Enabling Concept for C2 of Cyberspace Forces

Following a review by the Air Staff functional communities affected, the Air Force Manpower Agency will be collect field data to complete the proposed realignment metrics. The Air Force should then begin a transition plan over the next five years to dissolve the existing communications squadron organization, execute the proposed divestiture, regionalization, and centralization initiatives, and establish local Cyberspace Mission Assurance Detachments. Three test locations will precede this transition plan, in order to determine if there are additional impact issues and to build parameters for developing an Air Force wide transition plan. It is important this process be complete no later than the end of FY 2017, in order to meet structural command and control requirements outlined in the AFSPC Enabling Concept document.

Conclusion

The 2010 Joint Operating Environment characterizes the nation's reliance on cyberspace for everything from business to entertainment as similar to the nation's use of its highways and oceans; these are instruments of national power.[29] The reliance on cyberspace has reached critical mass. Similarly, the Air Force is reaching a critical juncture in its use of cyberspace as an operational domain. The traditional air and space missions that use cyberspace as a force enabler demand a renewed focus on this often-overlooked commodity. It is vital that the Air Force embrace a mission assurance focus, mapping cyberspace dependency and actively seeking to mitigate operational risk in network dependent missions. It is also time to review the duties of the legacy communications squadron and divest and centralize missions that are no longer required to be performed by a dedicated "communications support" unit. By placing these missions in more appropriate locations and achieving efficiency in personnel and resources, a cost savings will result that can be used to support the establishment of local Cyberspace Mission Assurance Detachments that work for the wing commander. By transitioning from a communications support focus to one of cyberspace mission assurance, the Air Force will help guarantee the availability of operational cyberspace to fight and win in all domains.

Endnotes

[1] Air Force Doctrine Document 1, *Air Force Basic Doctrine*, 14 October 2011, 13.

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